

SEQUENCE LISTING

<110> Cornell Research Foundation, Inc.

<120> RECESSIVE PLANT VIRAL RESISTANCE RESULTS FROM MUTATIONS
IN TRANSLATION INITIATION FACTOR eIF4E

<130> 19603/4251

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<150> 60/434,220

<151> 2002-12-17

<160> 39

<170> PatentIn Ver. 2.1

<210> 1

<211> 875

<212> DNA

<213> Capsicum annuum

<400> 1

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aggtgaaatt gttgaagaaa ctgatgatac gacgtcgtat ttgagcaaag aaatagcaac 180
aaagcatcca ttagagcatt catggacttt ctgggtttgat aatccagtgg cgaaatcgaa 240
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gatgcaatgt cggaatataa gaaacacaat tcgtactgaa aagttgtagg cactagttaa 780
gtttctcata cgataaagct tctgggttga gtaccttggt tattggtgtt tgcactttct 840
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<210> 2

<211> 228

<212> PRT

<213> Capsicum annuum

<400> 2

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 20 25 30
 Glu Ile Val Glu Glu Thr Asp Asp Thr Thr Ser Tyr Leu Ser Lys Glu
 35 40 45
 Ile Ala Thr Lys His Pro Leu Glu His Ser Trp Thr Phe Trp Phe Asp
 50 55 60
 Asn Pro Val Ala Lys Ser Lys Gln Ala Ala Trp Gly Ser Ser Leu Arg
 65 70 75 80
 Asn Val Tyr Thr Phe Ser Thr Val Glu Asp Phe Trp Gly Ala Tyr Asn
 85 90 95
 Asn Ile His His Pro Ser Lys Leu Val Val Gly Ala Asp Leu His Cys
 100 105 110
 Phe Lys His Lys Ile Glu Pro Lys Trp Glu Asp Pro Val Cys Ala Asn
 115 120 125
 Gly Gly Thr Trp Lys Met Ser Phe Ser Lys Gly Lys Ser Asp Thr Ser
 130 135 140
 Trp Leu Tyr Thr Leu Leu Ala Met Ile Gly His Gln Phe Asp His Glu
 145 150 155 160
 Asp Glu Ile Cys Gly Ala Val Val Ser Val Arg Gly Lys Gly Glu Lys
 165 170 175
 Ile Ser Leu Trp Thr Lys Asn Ala Ala Asn Glu Thr Ala Gln Val Ser
 180 185 190
 Ile Gly Lys Gln Trp Lys Gln Phe Leu Asp Tyr Ser Asp Ser Val Gly
 195 200 205
 Phe Ile Phe His Asp Asp Ala Lys Arg Leu Asp Arg Asn Ala Lys Asn
 210 215 220
 Arg Tyr Thr Val
 225

<210> 3

<211> 687

<212> DNA

<213> Capsicum chinense

<400> 3

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acgacgtcgt atttgagcaa agaaatagca gcaaagcatc cattagagca ttcattggact 180
ttctggtttg ataatacagt ggcgaaatcg agacaagctg cttggggtag ctcgcttcgc 240
aacgtctaca ctttctccac tgttgaagat ttttgggggtg cttacaataa tatccaccac 300
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tggaagatc ctgtatgtgc caatggaggg acatggaaaa tgagtttttc aaagggtaaa 420
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accaagaatg ctgcaaatga aacggctcag gtttagcattg gtaagcaatg gaagcagttt 600
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<210> 4

<211> 228

<212> PRT

<213> Capsicum chinense

<400> 4

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Met Ala Thr Ala Glu Met Glu Lys Thr Thr Thr Phe Asp Glu Ala Glu
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Lys Val Lys Leu Asn Ala Asn Glu Ala Asp Asp Glu Val Glu Glu Gly
          20              25              30

Glu Ile Val Glu Glu Thr Asp Asp Thr Thr Ser Tyr Leu Ser Lys Glu
          35              40              45

Ile Ala Ala Lys His Pro Leu Glu His Ser Trp Thr Phe Trp Phe Asp
          50              55              60

Asn Thr Val Ala Lys Ser Arg Gln Ala Ala Trp Gly Ser Ser Leu Arg
          65              70              75              80

Asn Val Tyr Thr Phe Ser Thr Val Glu Asp Phe Trp Gly Ala Tyr Asn
          85              90              95

Asn Ile His His Pro Ser Lys Leu Val Val Arg Ala Asp Leu His Cys
          100             105             110

Phe Lys His Lys Ile Glu Pro Lys Trp Glu Asp Pro Val Cys Ala Asn
          115             120             125

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Gly Gly Thr Trp Lys Met Ser Phe Ser Lys Gly Lys Ser Asp Thr Ser
 130 135 140

Trp Leu Tyr Thr Leu Leu Ala Met Ile Gly His Gln Phe Asp His Glu
 145 150 155 160

Asp Glu Ile Cys Gly Ala Val Val Ser Val Arg Gly Lys Gly Glu Lys
 165 170 175

Ile Ser Leu Trp Thr Lys Asn Ala Ala Asn Glu Thr Ala Gln Val Ser
 180 185 190

Ile Gly Lys Gln Trp Lys Gln Phe Leu Asp Tyr Ser Asp Ser Val Gly
 195 200 205

Phe Ile Phe His Asp Asp Ala Lys Arg Leu Asp Arg Asn Ala Lys Asn
 210 215 220

Arg Tyr Thr Val
 225

<210> 5

<211> 687

<212> DNA

<213> Capsicum annuum

<400> 5

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 acgacgtcgt atttgagcaa agaaatagca acaaagcatc cattagagca ttcattggact 180
 ttctggtttg ataatccaga ggcgaaatcg aaacaagctg cttggggtag ctgcgctcgc 240
 aacgtctaca ctttctccac tgttgaagat ttttgggggtg cttacaataa tatccaccac 300
 ccaagcaagt tagttgtggg agcagactta cattgtttca agcataaaat tgagccaaag 360
 tgggaagatc ctgtatgtgc caatggaggg acatggaaaa tgagtttttc aaagggtaaa 420
 tctgatacca gctggctata tacgctgctt gcaatgattg gacatcaatt cgatcatgaa 480
 gatgaaattt gtggagcagt agttagtgtc agaggtaagg gagaaaaaat atctttgtgg 540
 accaagaatg ctgcaaatga aacggctcag gtttagcattg gtaagcaatg gaagcagttt 600
 ctggattaca gcgacagtgt tggtttcata tttcacgacg atgcaaagag gctcgacaga 660
 aatgcaaaga atcgttacac cgtatag 687

<210> 6

<211> 228

<212> PRT

<213> Capsicum annuum

<400> 6

Met Ala Thr Ala Glu Met Glu Lys Thr Thr Thr Phe Asp Glu Ala Glu
 1 5 10 15
 Lys Val Lys Leu Asn Ala Asn Glu Ala Asp Asp Glu Val Glu Glu Gly
 20 25 30
 Glu Ile Val Glu Glu Thr Asp Asp Thr Thr Ser Tyr Leu Ser Lys Glu
 35 40 45
 Ile Ala Thr Lys His Pro Leu Glu His Ser Trp Thr Phe Trp Phe Asp
 50 55 60
 Asn Pro Glu Ala Lys Ser Lys Gln Ala Ala Trp Gly Ser Ser Arg Arg
 65 70 75 80
 Asn Val Tyr Thr Phe Ser Thr Val Glu Asp Phe Trp Gly Ala Tyr Asn
 85 90 95
 Asn Ile His His Pro Ser Lys Leu Val Val Gly Ala Asp Leu His Cys
 100 105 110
 Phe Lys His Lys Ile Glu Pro Lys Trp Glu Asp Pro Val Cys Ala Asn
 115 120 125
 Gly Gly Thr Trp Lys Met Ser Phe Ser Lys Gly Lys Ser Asp Thr Ser
 130 135 140
 Trp Leu Tyr Thr Leu Leu Ala Met Ile Gly His Gln Phe Asp His Glu
 145 150 155 160
 Asp Glu Ile Cys Gly Ala Val Val Ser Val Arg Gly Lys Gly Glu Lys
 165 170 175
 Ile Ser Leu Trp Thr Lys Asn Ala Ala Asn Glu Thr Ala Gln Val Ser
 180 185 190
 Ile Gly Lys Gln Trp Lys Gln Phe Leu Asp Tyr Ser Asp Ser Val Gly
 195 200 205
 Phe Ile Phe His Asp Asp Ala Lys Arg Leu Asp Arg Asn Ala Lys Asn
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 Arg Tyr Thr Val
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<210> 7

<211> 687

<212> DNA

<213> Capsicum annuum

<400> 7

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acgacgtcgt atttgagcaa agaaatagca acaaagcatc cattagagca ttcattggact 180
ttctggtttg ataattccaga ggcgaaatcg aaacaagctg cttggggtag ctcgcgtcgc 240
aacgtctaca ctttctccac tgttgaagat ttttgggggtg cttacaataa tatccaccac 300
ccaagcaagt tagttgtggg agcaaactta cattgtttca agcataaaat tgagccaaag 360
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gatgaaattt gtggagcagt agttagtgtc agaggtaagg gagaaaaaat atctttgtgg 540
accaagaatg ctgcaaatga aacggctcag gtttagcattg gtaagcaatg gaagcagttt 600
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aatgccaaaga atcggttacac cgtatag                                     687

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<210> 8

<211> 228

<212> PRT

<213> Capsicum annuum

<400> 8

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Met Ala Thr Ala Glu Met Glu Lys Thr Thr Thr Phe Asp Glu Ala Glu
  1              5              10              15

Lys Val Lys Leu Asn Ala Asn Glu Ala Asp Asp Glu Val Glu Glu Gly
          20              25              30

Glu Ile Val Glu Glu Thr Asp Asp Thr Thr Ser Tyr Leu Ser Lys Glu
          35              40              45

Ile Ala Thr Lys His Pro Leu Glu His Ser Trp Thr Phe Trp Phe Asp
          50              55              60

Asn Pro Glu Ala Lys Ser Lys Gln Ala Ala Trp Gly Ser Ser Arg Arg
          65              70              75              80

Asn Val Tyr Thr Phe Ser Thr Val Glu Asp Phe Trp Gly Ala Tyr Asn
          85              90              95

Asn Ile His His Pro Ser Lys Leu Val Val Gly Ala Asn Leu His Cys
          100             105             110

Phe Lys His Lys Ile Glu Pro Lys Trp Glu Asp Pro Val Cys Ala Asn
          115             120             125

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Gly Gly Thr Trp Lys Met Ser Phe Ser Lys Gly Lys Ser Asp Thr Ser
 130 135 140

Trp Leu Tyr Thr Leu Leu Ala Met Ile Gly His Gln Phe Asp His Glu
 145 150 155 160

Asp Glu Ile Cys Gly Ala Val Val Ser Val Arg Gly Lys Gly Glu Lys
 165 170 175

Ile Ser Leu Trp Thr Lys Asn Ala Ala Asn Glu Thr Ala Gln Val Ser
 180 185 190

Ile Gly Lys Gln Trp Lys Gln Phe Leu Asp Tyr Ser Asp Ser Val Gly
 195 200 205

Phe Ile Phe His Asp Asp Ala Lys Arg Leu Asp Arg Asn Ala Lys Asn
 210 215 220

Arg Tyr Thr Val
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<210> 9

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

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<210> 10

<211> 24

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Primer

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<210> 11

<211> 17

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Primer

<400> 11

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<210> 12

<211> 17

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 12

ggtccacata tttcatc

17

<210> 13

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 13

ttacacgcgc cgatacactt g

21

<210> 14

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 14

catcatctgc cttcattagc attcaat

27

<210> 15

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 15

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<210> 16

<211> 23

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Primer

<400> 16

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<210> 17

<211> 23

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Primer

<400> 17

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<210> 18

<211> 20

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Primer

<400> 18

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<210> 19

<211> 21

<212> DNA

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<223> Description of Artificial Sequence: Primer

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<210> 20

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<212> DNA

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<223> Description of Artificial Sequence: Primer

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<210> 21

<211> 27

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Primer

<400> 21

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<211> 23

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Primer

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<223> Description of Artificial Sequence: Primer

<400> 23

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27

<210> 24

<211> 25

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Primer

<400> 24

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<210> 25

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 25

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<210> 26

<211> 24

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Primer

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<210> 27

<211> 24

<212> DNA
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<223> Description of Artificial Sequence: Primer

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24

<210> 28
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<212> DNA
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<223> Description of Artificial Sequence: Primer

<400> 28
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24

<210> 29
<211> 21
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 29
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21

<210> 30
<211> 24
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 30
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24

<210> 31
<211> 24

<212> DNA
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Primer

<400> 31
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24

<210> 32
<211> 28
<212> DNA
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<220>

<223> Description of Artificial Sequence: Primer

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<210> 33
<211> 29
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

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29

<210> 34
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<223> Description of Artificial Sequence: Primer

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<210> 35
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<212> DNA

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<220>

<223> Description of Artificial Sequence: Primer

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21

<210> 36

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28

<210> 37

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

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<210> 38

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 38

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<210> 39

<211> 24

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Primer

<400> 39

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24